API Specification
2MT2
1st Edition, June 2002
Rolled Shapes with Improved Notch Toughness

Appendix A

Suggestions for Ordering API Spec 2MT2 Shapes

A1
Placing Orders

In placing orders for steel shapes to be manufactured in accordance with API Spec 2MT2, the purchaser should specify the following on the purchase order (parenthetical remarks are commentary for the user, and need not appear on the order):

Specification	API Spec 2MT2
Grade	(All are 50 ksi yield, group II in AWS D1.1 and API RP 2A)
Class*	C (Ordinary chemistry and toughness)
	B (Improved chemistry and toughness)
	A (Superior chemistry and toughness)
	AAZ (Invoking extras in 8.14: S101)
Quantity/Size	As Required
Mill inspection by Purchaser	State if Required, and Any Advance Notice Requirements
Items Only "By Agreement"	Section 1.5: Other International Standards
	Section 4.7: Third Party Remediation Shop
	Section 8.1: SR1 – Prescribed Steelmaking Methods
	Section 8.3: SR3 – Lower Impact Test Temperature
	Section 8.4: SR4 – Production Lot Tension Tests
	Section 8.7: SR19 – ISO 10005; Hold points
	Section 8.8: SR20 – Surface Defect Percentage
Items Only "By Agreement"	Section 8.9: SR44 – Min. RA > 30%
	Section 8.11: SR76 – Core Charpy Criteria
	Section 8.13: SR78 – Charpy 50% Shear
	Section 8.14: SR101 – Class AAZ
	Section 8.15: SR102 – No Tolerance on Chemistry
Intended Fabrication Heat Treatment	For Manufacturer's Information, Even if No 8.6: SR9
Delivery Date, Shipping Instructions	As Required
Supplementary Requirements	As Required

(Continued to next column)

***Note:** Classes C, B, and A are intended to correspond to API RP 2A (steel classes described in Section 8.1.3 and weld impact requirements of Section 10.2.2). Class AAZ is intended for exceptionally critical applications.*

A2
Commentary on Supplementary Requirements

The purchaser should state on the purchase order the requirements concerning the following Supplementary Requirements, which are optional with the purchaser. However, not all options are available from all producers, and some require specific agreement.

A2.1
SR1 – Vacuum Treatment

Common prescriptive supplement from ASTM beam specs, but rarely found in API node steel specs, which are performance based.

A2.2
SR2 – Product Analysis Without Tolerance

Chemistry from the finished product, rather than from the heat's ladle sample, eliminating the tolerances allowed by ASTM A6.

A2.3
SR3 – Impact Tests at Lower Temperature

The following targets have been suggested as being possible in some cases, and more compatible with the usage of plate specifications in offshore structures:

Class C	20 ft-lb. at 32°F	27J at 0°C
Class B	20 ft-lb. at –4°F	27J at –20°C
Class A	30 ft-lb. at –40°F	41J at –40°F Required for Class AAZ

Users are cautioned that, for heavy section beam and column sections having flange thickness greater than 1.5 inches, meeting the foregoing toughness requirements may have progressively more limited availability with the usual production methods, and may require time consuming and costly extra processing. For these applications, consideration should be given to fabricating members by welding together 50 ksi plates of appropriate chemistry and Charpy toughness, in which case the provisions of AWS D1.1 apply; or beams of a higher performance class may be substituted.)

A2.4
SR4 – Additional Tension Tests

Testing production lot rather than heat lot, required for Class AAZ.

A2.5
SR8 – Ultrasonic Examination

Recommended to avoid pre-existing laminations in the through member of truss connections or nodes; alternatively, this inspection may be performed on a spot basis at the fabrication site, and the member re-orientated to avoid laminations at nodes.

A2.6
SR9 – Simulation of Thermal Treatment

Checks for loss of strength or toughness if the steel is to be heated during fabrication above 1050°F (565°C), beyond the usual heat affected zone from welding.

A2.7
SR19 – Additional Quality Control Requirements

Quality system, quality plan, process control plan, and traceability, for Class AAZ.

A2.8
SR20 – Additional Surface Requirements and Weld Repair

Surface defects marked by steelmaker and weld repaired by qualified fabricator. Part of Class AAZ.

A2.9
SR44 – Through Thickness (Z-Direction) Testing

Recommended to avoid laminar tearing in the through member of truss connections or nodes. Passing the test may require further processing beyond 8.12: SR77, reduced sulfur. Appropriate supplement for Class A. Required part of Class AAZ. If a reduction of area greater than the standard 30% is required, this must be stated, subject to agreement.

A2.10
SR75 – Maximum Yield and Yield/Tensile Ratio

Part of Class AAZ.

A2.11
SR76 – Core Region Charpy Tests

Results are typically less favorable than samples from the flange, but research is mixed on the significance of this.

A2.12
SR77 – Reduced Sulfur

May be used to achieve the goals of 8.9: SR44 without the extra cost of Z-direction testing.

A2.13
SR78 – 50% Shear Fracture Appearance

Often a better indicator of the brittle fracture transition temperature than a modest impact energy requirement, for modern low sulfur steels. Also may be more difficult for steel-makers to meet. Part of Class AAZ.

A2.14
SR101 – Class AAZ Shapes

Collects various Supplementary Requirements for critical applications, including Charpy tests at –40°F (40°C).

A2.15
SR102 – Product Analysis without Tolerance

Available by special agreement only.